

The SAFDI System

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DI Simulation Systems

◆ DI Generators

- Provide infantry for benefit of other participants

◆ DI Trainers

- Train humans in DI skills by involving them in the battlefield simulation

The SAFDI System

- ◆ Semi-Automated Forces Dismounted Infantry
- ◆ Goals
 - Add DI to DIS battlefield
 - Develop DI capabilities in a CGF system
 - Build experience in using DI in DIS
- ◆ Time frame
 - Fall 1990 to Spring 1994

What is SAFDI?

- ◆ Extension of IST's CGF Testbed
- ◆ Operates in SIMNET/DIS
- ◆ DI Generator

Basic Capabilities

- ◆ Sight activity within line of sight
- ◆ Report sightings
- ◆ Kill/Be killed
- ◆ Mount/Dismount vehicles
- ◆ Be seen
- ◆ Change movement speed

Advanced Capabilities

- ◆ Group commands
- ◆ Attach and follow
- ◆ Air defense weapons
- ◆ Forward observers
- ◆ Parametric fireteams

Mission

- ◆ Fireteam level; no higher level echelons.
- ◆ No “casualty evacuation/return”

Physical Battle Environment

- ◆ 125 m terrain (SIMNET terrain).
- ◆ No dynamic terrain features.
- ◆ Real-time and interacts with real-time distributed processes.
- ◆ No phenomenology effects.

Soldier State

- ◆ Perfect knowledge of physical environment; however, only dynamic entities within LOS are known to fireteam.
- ◆ Injury status: similar to SIMNET “kills”.
- ◆ Exhaustion and suppression factors are figured in to simulation.

Dynamic Behavioral Response

- ◆ Behavior triggered by simulated events.
- ◆ HITL is the platoon leader.

Delivery and Evaluation

- ◆ SAFDI was delivered to Forts Benning and Stewart in late 1993 and early 1994
- ◆ Organized evaluation conducted by Dismounted Warfighting Battle Lab
- ◆ DI was used in 3 training scenarios with A Company 1/29 Infantry (Mech)

Results

- ◆ SAFDI system worked reliably
- ◆ Soldiers reacted positively to increased realism and challenges of DI-enhanced scenarios
- ◆ Scenario length grew from 35 minutes to 2 hours
- ◆ “SAFDI greatly increased my unit’s training” -- CPT William Hessenius, CO A Co, 1/29

DI Lessons Learned

- ◆ Problems with simulating DI in SIMNET
 - One icon per fireteam
 - No mount or dismount procedures
 - No coaxial machine guns on simulators
- ◆ These must be corrected in DIS systems, e.g., CCTT

Observations: DIS protocol

◆ Entity State

- Life form state in ES PDU mixes type and activity (parachutists, swimmers, and DI are separate types)
- Available stances (prone, kneeling, standing) and gaits (crawling, walking, running, jumping) are too limited for individual combatant simulations
- Articulated human figures raise bandwidth and dead reckoning issues
- Representing non-entity objects (e.g., weapons) would be useful

DI in the DIS protocol

◆ Terrain

- Microterrain crucial at DI level (soldiers hide behind small things)
- Dynamic terrain important (source of cover, demolition activities)

DI in the DIS protocol

◆ Weapons fire

- Non-impacting rounds not represented, can be important (sound, ricochet)
- Weapons status (stowed, deployed, firing) too limited

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